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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.												
10/698,622	10/31/2003	Andrey L. Balmin	ARC920030042US1	3369												
7590 MARC D. MCSWAIN IBM CORPORATION, INTELLECTUAL PROPERTY LAW DEPT. C4TA/J2B 650 HARRY ROAD San Jose, CA 95120-6099		<table border="1"><tr><td colspan="2">EXAMINER</td></tr><tr><td colspan="2">PONIKIEWSKI, TOMASZ</td></tr><tr><td>ART UNIT</td><td>PAPER NUMBER</td></tr><tr><td colspan="2">2165</td></tr><tr><td>MAIL DATE</td><td>DELIVERY MODE</td></tr><tr><td colspan="2">07/13/2007 PAPER</td></tr></table>			EXAMINER		PONIKIEWSKI, TOMASZ		ART UNIT	PAPER NUMBER	2165		MAIL DATE	DELIVERY MODE	07/13/2007 PAPER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/698,622	BALMIN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Tomasz Ponikiewski	2165	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 23 April 2007.

2a)  This action is FINAL.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-4,6-25,27-46 and 48-67 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-4,6-10,17-19,21-25,27-31,38-40,42-46,48-52,59-61,63 and 64 is/are rejected.

7)  Claim(s) 11-16,20,32-37,41,53-58,62 and 65-67 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
    1.  Certified copies of the priority documents have been received.  
    2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
    3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892) 4)  Interview Summary (PTO-413)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948) Paper No(s)/Mail Date. \_\_\_\_\_  
3)  Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_ 5)  Notice of Informal Patent Application  
6)  Other: \_\_\_\_\_

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4-December-2006 has been entered.

2. The Amendment filed on December 8, 2006 has been received and entered. Claims 5, 26 and 47 have been canceled, while claims 65-67 have been newly added. Therefore claims 1-4, 6-25, 27-46 and 48-67 are pending.

3. The amendment overcomes the objections and rejections under 112 and 101.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-2, 22-23 and 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson et al. (US 6,850,933 B2) in view of Chan et al. (US 2004/0010752 A1).

As per claims 1, 22, and 43 Larson et al. is directed to a computer-implemented method, system and product for querying a structured document, comprising:

identifying auxiliary structures including pre-computed information applicable to accelerate user query processing by detecting containment mappings between query expressions and expressions in the auxiliary structures (Larson et al., column 2, lines 51-59);

wherein the auxiliary structures include a number of indexes, and a number of materialized views (Larson et al., column 16, lines 55-67);

computing compensation to perform index selection and materialized view matching to determine what portion of said query expressions are evaluated by said index and said materialized view (Larson et al., column 16, lines 55-67),

finding the user query result by executing a rewritten query that exploits the pre-computed information to each detected containment mapping (Larson et al., column 8, line 67; column 8, lines 1).

reporting said user query result to said user (Larson et al., column 7, line 67; column 8, line 1)

Larson et al. does not teach a number of partial xml indexes.

Chen et al. does teach a number of partial xml indexes (Chen et al., paragraph 0027, lines 1-5)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the Larson et al. by teachings of Chen et al. to include a number of partial xml indexes because it increases the chances of finding helpful structure.

As per claim 2, 23, and 44 Larson et al. as modified is directed to comprising implementing the method in a relational database management system (Larson et al., column 1, lines 48-49)

As per claim 17, 38, and 59 Larson et al. as modified is directed to the identifying handles at least one of: nested path expressions, nested predicates, value-based comparison predicates, conjunction, disjunction, all XPath axes, branches, and wild cards (Larson et al., column 7, lines 64-65; column 16, lines 64-67)

As per claim 64 Larson et al. is directed to a system for querying a structured document, comprising:

means for identifying auxiliary structures including pre-computed information applicable to accelerate user query processing by detecting containment mappings between query expressions and expressions in the auxiliary structures (Larson et al., column 2, lines 51-59);

wherein the auxiliary structures include a number of indexes, and a number of materialized views (Larson et al., column 16, lines 55-67);

means computing compensation to perform index selection and materialized view matching to determine what portion of said query expressions are evaluated by said index and said materialized view (Larson et al., column 16, lines 55-67).

means for finding the user query result by executing a rewritten query that exploits the pre-computed information to each detected containment mapping (Larson et al., column 8, line 67; column 8, lines 1),

means for reporting said user query result to said user (Larson et al., column 7, line 67; column 8, line 1)

Larson et al. does not teach a number of partial xml indexes.

Chen et al. does teach a number of partial xml indexes (Chen et al., paragraph 0027, lines 1-5)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the Larson et al. by teachings of Chen et al. to include a number of partial xml indexes because it increases the chances of finding helpful structure.

6. Claims 3-4, 6-10, 18, 24-25, 27-31, 39, 45-46, 48-52 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson et al. (US 6,850,933 B2) in view of Chenal. (US 2003/0010752 A1) and further in view of Jones et al. (US 2004/0010754 A1).

As per claim 3, 24, and 45 Larson et al. as modified does not teach the structured document includes a set of nodes described by an expression tree.

Jones et al. does teach the structured document includes a set of nodes described by an expression tree (Jones et al., paragraph 0013, lines 7-8, paragraph 0059).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the Larson et al. as modified by teachings of Jones et al. to include the structured document includes a set of nodes described by an expression tree because it makes it easier and efficient to determine the substitutions for the expressions.

As per claims 4, 25, and 46 Larson et al. as modified does not teach wherein the structured document is an XML document.

Jones et al. does teach the wherein the structured document is an XML document (Jones et al., paragraph 0013, lines 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the Larson et al. as modified by teachings of Jones et al. to include wherein the structured document is an XML document because XML documents are well known in the art.

As per claims 6, 27, and 48 Larson et al. as modified does not teach wherein the pre-computed information includes pre-computed Xpath results (PXRs).

Jones et al. does teach wherein the pre-computed information includes pre-computed Xpath results (PXRs) (Jones et al., paragraph 0030, lines 7-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the Larson et al. as modified by teachings of Jones et al. to include wherein the pre-computed information includes pre-computed Xpath results (PXRs) because it is easier and more efficient to use.

As per claim 7, 28, and 49 Larson et al. as modified does not teach the user query processing further comprises navigating path expressions with a query language.

Jones et al. does teach the user query processing further comprises navigating path expressions with a query language (Jones et al., paragraph 0013, line 7-10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the Larson et al. as modified by teachings of Jones et al. to include teach the user query processing further comprises navigating path expressions with a query language because search engines are well known and used in the art.

As per claim 8, 29, and 50 Larson et al. as modified is directed to the query language employs Xpath (Jones et al., paragraph 0013, line 9-10)

As per claim 9, 30, and 51 Larson et al. as modified is directed to the query language includes at least one of: XQuery, SQL/XML, and XSLT (Jones et al., paragraph 0013, lines 7-10).

As per claim 10, 31, and 52 Larson et al. as modified is directed to the detecting further comprises:

selectively executing a set of predetermined sequential rules to perform traversing of a tree of nodes (Larson et al., column 3, lines 4-9);  
matching node data with the pre-computed information (Larson et al., column 3, lines 4-9);

and selecting auxiliary structures that subsume portions of the user query (Larson et al., column 3, lines 4-9).

Larson et al. as modified does not teach of a tree of nodes.

Jones et al. does teach a tree of nodes (Jones et al., paragraph 0013, lines 7-8, paragraph 0059).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the Larson et al. as modified by teachings of Jones et al. to include a tree of nodes because tree of nodes makes it easier and efficient to determine the substitutions for the nodes.

As per claim 18, 39, and 60 Larson et al. as modified does not teach the XPath axes include child, descendant, self, attribute, parent, and descendant-or-self.

Jones et al. does teach the XPath axes include child, descendant, self, attribute, parent, and descendant-or-self (Jones et al., table 2, lines 29-39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the Larson et al. as modified by teachings of Jones et al. to include teach the XPath axes include child, descendant, self, attribute, parent, and descendant-or-self because it makes it more efficient to identify relation.

7. Claims 19, 21, 40, 42, 61 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson et al. (US 6,850,933 B2) in view of Chen et al. (US 2003/0010752 A1) and further in view of Schreiber et al. (US 2002/0138353 A1).

As per claim 19, 40, and 61 Larson et al. as modified does not teach to comprising creating a mapping directed acyclic graph (DAG) that separately encodes a set of all containment mappings for each node.

Schreiber et al. does teach to comprising creating a mapping directed acyclic graph (DAG) that separately encodes a set of all containment mappings for each node (Schreiber et al., paragraph 0060, lines 5-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the Larson et al. as modified by teachings of Schreiber et al. to include to comprising creating a mapping directed acyclic graph (DAG) that separately encodes a set of all containment mappings for each node because directed acyclic graph reduces the number of comparisons necessary to identify the mapping.

As per claim 21, 42, and 63 Larson et al. as modified is directed to comprising pruning the mapping DAG to remove invalid node pairs (Schreiber et al., paragraph 0075, lines 3-5).

***Allowable Subject Matter***

8. Claims 11-16, 20, 32-37, 41, 53-58, 62, and 65-67 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

9. Applicant's arguments with respect to claims 1-4, 6-25, 27-46 and 48-67 have been considered but are moot in view of the new ground(s) of rejection.

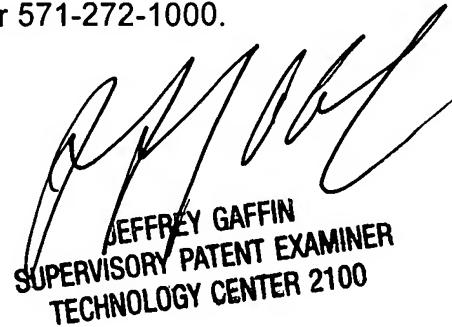
***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tomasz Ponikiewski whose telephone number is (571)272-1721. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A. Gaffin can be reached on (571)272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tomasz Ponikiewski  
July 5, 2007



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